REMARKS

The undersigned wishes to thank Examiner Mulpuri for the courtesies she extended during the personal interview of June 23, 2006. During the interview, the present invention and the applied art were discussed in detail.

Specifically, the final Office Action repeated its rejection of claims 1-16 and its rejection of new claim 18 under 35 U.S.C. §103 as allegedly being unpatentable over the Zhang et al patent publication (US 2003/0010971 A1) in combination with the Tsakalakos et al patent publication (US 2004/0077156 A1). In light of the comments made during the interview, claim 1 has been amended to further clarify that the first seminconductor layer undergoes regrowth to completely fill the nanoholes in the mask layer and extend above the mask and cover the mask layer between nanoholes, which the Examiner indicated may overcome the rejection.

It was the Examiner's position during the interview that in the Zhang patent the upper AlGaAs layer 92 might extend partially into the nanoholes and, in the Office's opinion, that possibility met the recitation of "forming a second semiconductor layer in and above the mask layer having nanoholes through a regrowth of the first semiconductor layer." The undersigned respectfully disagrees on the basis that the first layer would not be involved in such a process, but agreed that changing claim 1, step (e), to recite that the first semiconductor layer (amended simply to be "semiconductor layer") completely fills the nanoholes in the mask layer and extends above the mask layer and covers the mask layer between the nanoholes. This clearly separates the present invention from the Zhang patent publication, which includes a vertical stack of InGaAs/GaAs quantum dots which are grown inside the nanopores 98, as identified in paragraph [0041] of the Zhang patent

publication. The amended language cannot be said to read on a system where quantum dots fill or partially fill the nanoholes.

Applicants also discussed the Tsakalakos et al patent publication which discloses the use of an inorganic mask layer (e.g., a copolymer thin film) which undergoes a selective etching process wherein a first component is strongly resistant to a particular reactive etching process whereas the second component of the block copolymer is easily etched away, thereby leaving a series of nanoholes. A thin film 204 is grown over the exposed substrate surface 206 to promote lateral epitaxial vertical and lateral growth. As mentioned during the interview, a problem with the hypothetical combination is that the intended purpose for function of one or both of the references is destroyed by their combination. This indicates that a *prima facie* case of obviousness has not been established. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). In this instance, because the Zhang et al patent publication discloses that its purpose is to create electrical devices (nanoscale MOSFETs) in the nanopores, it would be inappropriate to suggest that it would be obvious to one of ordinary skill in the art to find motivation to destroy this core feature and function of the Zhang et al patent publication. Hence, the combination is inappropriate whether one views the Zhang et al patent publication or the Tsakalakos et al patent publication as being the primary reference.

Also, the block copolymer thin films which create nanoscale patterns require only an etching process. It is respectfully submitted that one skilled in the art would not go through the complexity of the process disclosed in the Zhang et al patent publication and that the two approaches are neither equivalent nor would it be reasonable to assume that one of ordinary skill in the art would opt for the more

complex process without there being additional reasons not apparent in the record. Stated differently, the prior art does not supply motivation for a hypothetical combination which would result in the present invention.

In light of the foregoing, applicants respectfully request reconsideration and allowance of the above-captioned application. Should any residual issues exist, the Examiner is invited to contact the undersigned at the number listed below.

Respectfully submitted,

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